

Malignant Neoplasm of the Tongue Mimicking an Oral Pyogenic Granuloma: A Case Report

AJIT CHANDRASEKHAR¹, SAURABH KUMAR², RABIN CHACKO³, ARUN PAUL CHARLU⁴

ABSTRACT

Pyogenic Granuloma (PG) is a benign reactive lesion characterised by tissue hyperplasia caused by local irritants. The gingiva is the most common site of occurrence in the oral cavity, followed by the tongue and buccal mucosa. It typically presents as a pedunculated or sessile mass. Removal of the irritants and complete excision of the lesion from its base usually results in complete resolution. In this case report, the authors present the case of a 44-year-old female patient, who presented to maxillofacial surgeons with complaints of difficulty in eating and speaking due to a large growth on her tongue that had been present for the past year. The mass, which was non-tender and non-indurated, nearly filled the oral cavity. Routine medical examination revealed iron deficiency anaemia, and systemic correction was initiated. Concurrently, the patient underwent surgical excision of the mass, which was initially diagnosed as a PG, under local anaesthesia. However, the final biopsy revealed poorly differentiated Squamous Cell Carcinoma (SCC). Subsequent radiological investigations revealed extensive local and regional disease spread with metastasis to the upper chest wall. As a result, the patient was advised palliative care by the Institution's head and neck tumour oncology board.

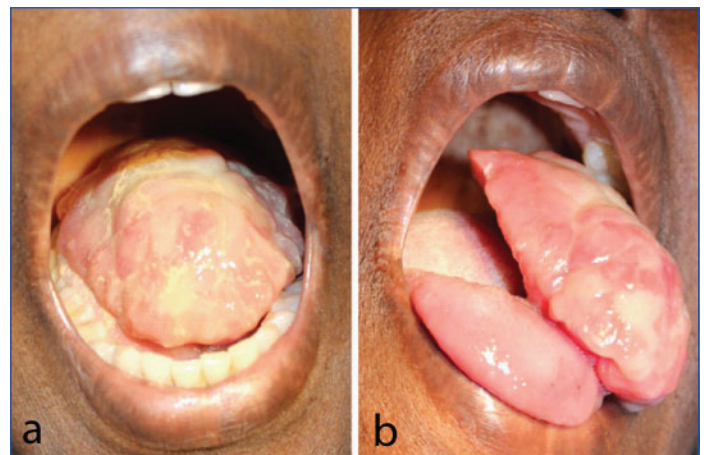
Keywords: Biopsy, Gingiva, Pedunculated, Squamous cell carcinoma

CASE REPORT

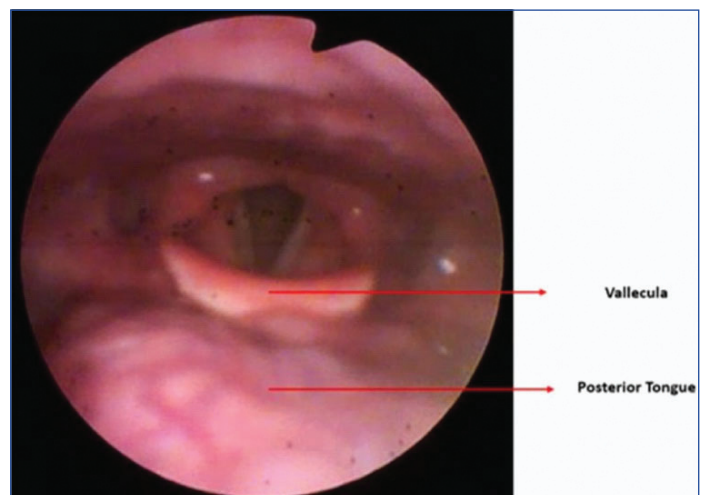
A 44-year-old female patient, residing in Vellore reported to the Oral and Maxillofacial Surgery Department at Christian Medical College and Hospital, Vellore, with a chief complaint of inability to eat or speak properly for the past year. The patient had a history of continuous irritation of the tongue for the last two years, and a growth that started as a small mass one year ago. The mass was not associated with any pain or tenderness and had gradually grown to fill the oral cavity, causing difficulty in eating, loss of appetite, and weight loss. The patient was brought to the hospital by a social worker because she required treatment, but her socio-economic situation was below the poverty level, and thus she had not sought medical treatment over the past two years. There was no familial history of malignancy. The patient's medical history was non-contributory, and she did not have any tobacco-related habits.

On examination, the patient appeared very fragile and malnourished. No swelling was noted over the face, and a non-tender submandibular node was palpable on the left-side, which was mobile and not fixed to underlying structures. Intraoral examination revealed a 7×5 cm polypoid mass attached only by a pedicle on the left lateral aspect of the tongue, extending towards the pharynx. The growth was mostly soft but firm in some regions and non-tender on palpation [Table/Fig-1]. Nasopharyngolaryngoscopy (NPL) performed by an ENT surgeon revealed that the posterior one-third of the tongue was normal and that the lesion was only attached to the left lateral border of the tongue [Table/Fig-2]. Routine blood investigations revealed significant abnormalities in iron levels, Total Iron Binding Capacity (TIBC), Haemoglobin (Hb), and ferritin, while sodium and HbA1c values were mildly altered [Table/Fig-3].

The mass was initially diagnosed as a giant PG on the left lateral border of the tongue due to its pedunculated nature. Additionally, the patient was diagnosed with microcytic hypochromic iron deficiency anaemia and pre-diabetes systemically. Prior to the procedure, the patient received a transfusion of one unit of packed red cells over four hours to achieve a target Hb level of 8 g/dL, as



[Table/Fig-1]: (a) Growth at superficial layer of tongue. (b) Underlying surface of the tongue.



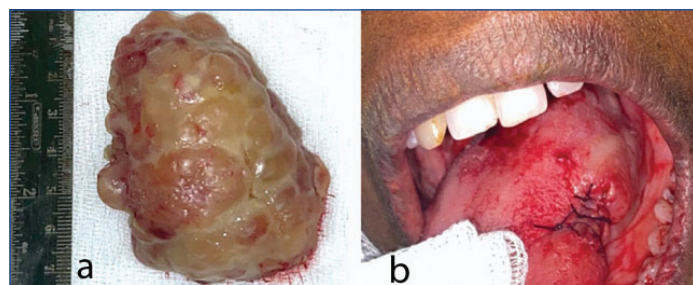
[Table/Fig-2]: NPL scopy photograph showing normal posterior tongue.

advised by the general medicine team. Following this, an excisional biopsy, as recommended for a PG [1], was performed under local anaesthesia. Local infiltration with 2% lignocaine with adrenaline

was used at the peduncular stalk, and a left-side lingual nerve block was administered. The peduncle was incised, and dissection was carried out until the base of the peduncle, completely releasing it. Primary closure was performed using 3-0 vicryl. The entire proliferative mass and its attachment were excised and sent for histopathological confirmation of the diagnosis [Table/Fig-4]. The patient experienced no complications during the procedure and was advised to follow-up with the general medicine unit for iron supplementation and further systemic evaluation.

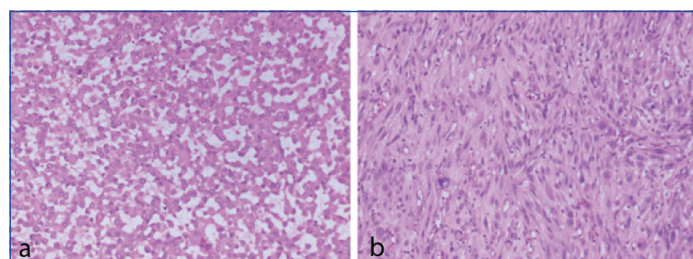
Investigation	Result	Normal Value
HbA1C	6.0 %	<5.7 %
Fasting Glucose	105 mg/dl	70-99 mg/dl
Creatinine	0.47 mg%	0.5-1.4 mg%
Reticulocyte Count	2.31 %	0.5-2.5 %
Ferritin	14.9 ng/ml	Females: 10-291 ng/ml
Serum Electrolytes		
Sodium	131 m mol/L	135-145 m mol/L
Potassium	4.5 m mol/L	3.5-5.0 m mol/L
Bicarbonate	26 m mol/L	22-29 m mol/L
Complete Blood Count (CBC) Profile		
Mean Corpuscular Volume (MCV)	63.7 fl	80-100 fl
Mean Corpuscular Haemoglobin (MCH)	15.7 pG	26-34 pG
Mean corpuscular hemoglobin concentration (MCHC)	24.6 %	31.4-36.3 %
Red Cell Distribution Width (RDW)	21.8 %	11.5-14.5 %
Total White Blood Cell (WBC) Count	16,800 cells/cu mm	4,000-12,000 cells/cu mm
Platelet Count	6,24,000 cells/cu mm	1,50,000-4,50,000 cells/cu mm
RBC count	4.27 Mill/cu mm	Females: 3.8-5.2 Mill/cu mm
Haematocrit (HCT)	27.2 %	Females: 35-46 %
Iron		
Iron	11 µg%	Females: 40-145 µg%
Total Iron-binding Capacity	223 µg%	Females: 250-350 µg%

[Table/Fig-3]: Routine blood investigations conducted with the results.



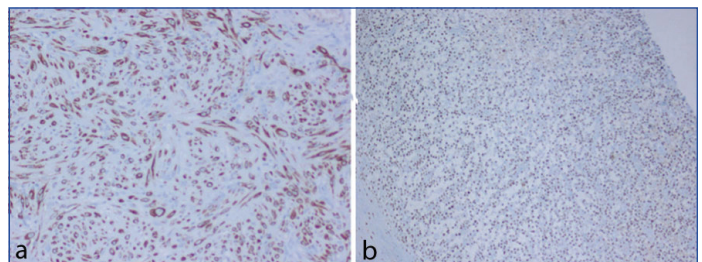
[Table/Fig-4]: Intraoperative photograph showing the excised specimen (a) and the primarily closed surgical site (b) on the left lateral border of the tongue.

Histopathological evaluation revealed fibrocollagenous tissue covered by stratified squamous epithelium with extensive ulceration and mild dysplasia infiltrated by an ill-defined tumour arranged as sheets, nests, anastomosing cords, trabeculae, and occasional alveolar patterns. The tumour consisted of polygonal cells with fine chromatin, inconspicuous nucleoli, and abundant granular eosinophilic cytoplasm. Foreign body suture material with adjacent giant cell reaction was present. The adjacent stroma showed fibrosis mixed with small-caliber vascular channels. Adjacent spindle cell lesions forming vague fascicles with blunt ends, fine chromatin in the nucleus, inconspicuous nucleoli, and scant cytoplasm were also observed. Some rhabdoid cells, bizarre-looking cells, and tumour giant cells were present [Table/Fig-5a,b].



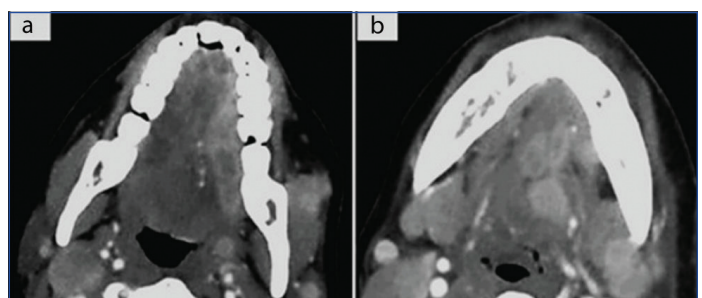
[Table/Fig-5]: a) Epithelioid cells in the histological section of lesion. H&E stain magnification x100; b) Spindle cells in histological section of lesion. H&E stain magnification x400.

Tumour Immunohistochemistry (IHC) was performed for confirmation and further categorisation of the malignancy. The tumour cells were positive for PanCK and p40, and negative for CD31, desmin, s100, and p16 [Table/Fig-6a,b].

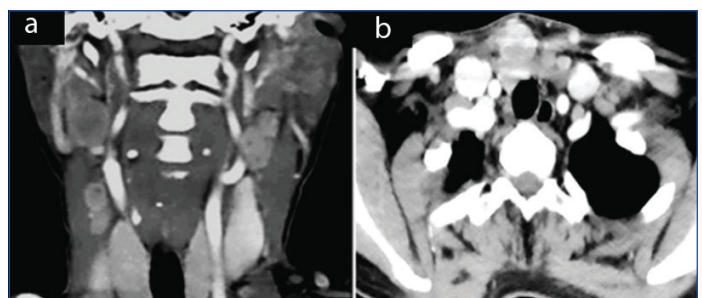


[Table/Fig-6]: (a) Tumour cells showing positivity for PanCK. Immunohistochemistry (IHC), magnification x100; (b) Tumour cells showing positivity for p40. Immunohistochemistry (IHC), magnification x100.

The final diagnosis was a poorly differentiated SCC of the tongue with spindle cell and epithelioid cell morphology. Following the diagnosis, the patient was referred to the departments of medical oncology, radiation therapy, and head and neck surgery for further evaluation and to plan a second line of management. The head and neck surgical oncology team advised a Computed Tomography (CT) scan of the head and neck with contrast, which revealed a confluent, heterogeneously enhancing lesion along the left lateral border of the anterior third of the tongue, extending up to the midline without crossing it. The maximum depth of invasion was approximately 13 mm, and the lesion was in close proximity to the left lingual neurovascular bundle without encasing it. Multiple enhancing heterogeneous areas were observed within the extrinsic muscles of the tongue and floor of the mouth, including the left anterior belly of the digastric, mylohyoid muscle, geniohyoid, and hyoglossus muscles [Table/Fig-7a,b]. The posterior third/base of the tongue was not involved. Enlarged bilateral cervical lymph nodes and left intraparotid lymph nodes were present, some of which showed features suggestive of extranodal extension. Multiple enhancing necrotic masses were also noted within the left masseter muscle. Along the anterior triangle of the neck and upper chest wall, multiple enhancing subcutaneous nodules measuring up to 5 mm were present [Table/Fig-8a,b].



[Table/Fig-7]: a) Axial CT depicting enhancing lesion on left lateral border of tongue; b) Axial CT depicting multiple enhanced heterogenous areas on floor of mouth.



[Table/Fig-8]: a) Coronal CT depicting bilateral cervical nodes along multiple levels; b) Axial CT depicting nodules in the upper anterior chest.

Due to the extensive nature of the disease, the head and neck tumour oncology board planned for palliative care for the patient. Treatment options discussed included immunotherapy, carboplatin+paclitaxel chemotherapy, followed by Oral Metronomic Chemotherapy (OMCT) and supportive care. However, due to financial constraints, the patient opted for OMCT. Unfortunately, the patient did not return for further management, and during a telephonic follow-up, it was noted that the patient had passed away three months after her last visit to the hospital.

DISCUSSION

India contributes to one-third of the total burden of oral cancer, which is also the 11th most common form of cancer worldwide. Tobacco usage, human papillomavirus, alcohol, poor nutrition, an immunocompromised state, and chronic irritation are commonly attributed etiological factors for SCC of the oral cavity [2]. Chronic irritation is often considered a modifier rather than an initiator of oral cancer [3]. Tongue cancers are the most common forms, accounting for 40% of all forms of oral cancer [4], with the majority of lesions presenting as ulcerative growths [5]. The tongue, being highly vascularised and muscular with a rich lymphatic network, predisposes it to be a site of malignant invasion [6].

Pyogenic Granulomas (PGs) are benign, reactive, hyperplastic growths in the oral cavity that preferentially affect the gingiva, buccal mucosa, tongue, hard palate, and lip [7]. Although the exact cause of PGs is unknown, they are thought to be related to chronic irritation or trauma [8]. PGs are more common in the second to fifth decades of life, with a higher percentage of cases occurring in females, suggesting that female sex hormones may play a role in their formation [8,9]. PGs typically present as exophytic, lobulated, or smooth masses with a mostly pedunculated base, although the lobular capillary hemangioma variant may have a sessile base [8,10]. On the other hand, oral SCC is rarely pedunculated but is frequently ulcerative and indurated [4].

The index patient, nearing the fifth decade of life, presented with a slow-growing, non-indurated, pedunculated, and painless exophytic lesion on the tongue with a history of chronic mechanical trauma. This demographic profile and clinical presentation favoured a clinical diagnosis of PG. Even though chronic irritation was considered a confounding factor for SCC rather than an independent risk factor [3].

A polypoid, pedunculated, or exophytic growth pattern is indicative of Spindle Cell carcinoma (SpCC), which is an exceptionally sparse variant of SCC with unique clinicopathologic traits [11]. It predominantly occurs in the larynx and is almost always an aggressive and poorly differentiated form of SCC [12]. Predisposing factors for SpCC include alcohol consumption, smoking, and previous irradiation history [13]. This type of neoplasm, with two different cellular elements, is referred to as a biphasic neoplasm. However, in this case, none of the features of a biphasic neoplasm were present.

The diagnosis of a PG is mostly clinical, and radiographs are not essential unless they are located close to the teeth and signs of bone loss are present. The final diagnosis is based on the histopathological report [14]. In the index patient, the lesion was on the tongue with no features of bony involvement, but signs of malignancy were evident. Therefore, it was provisionally diagnosed as a PG, and an excisional biopsy was performed as complete excision is the treatment of choice [14-16]. Complete excision is associated with the least recurrence rates and a definitive cure [17].

Unfortunately, it was reported as SCC with epithelial and spindle cell components.

The IHC markers are highly essential tools in diagnosing a biphasic neoplasm as they express both epithelial and mesenchymal markers [18]. In the present case, the tumour cells were predominantly SCC with adjacent spindle cell bundles, and only the epithelial markers were expressed, but not the mesenchymal markers. Spindle cells can be focally positive for PanCK [19], which was expressed in the present case.

If a spindle cell component is present, the neoplasm is considered more aggressive than usual, and close follow-up after surgery and radiotherapy is recommended due to the exceptionally high rate of recurrence [20]. As these lesions tend to metastasize and recur easily, prognosis is based on the depth of invasion, although it remains controversial [21].

CONCLUSION(S)

Over three lakh people are estimated to be diagnosed with oral SCC annually, with India accounting for over 20% of the diagnosed population. SCC can even present as a pedunculated lesion similar to a PG. Therefore, when patients present with large lesions (>2 cm), regardless of the nature of the lesion, it is advisable to perform a CT scan of the head and neck as part of the first line of investigations and to opt for an incisional biopsy rather than an excisional biopsy.

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PARTICULARS OF CONTRIBUTORS:

1. Post Doctoral Fellow, Department of Oral and Maxillofacial Services, Dental and Oral Surgery I, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.
2. Associate Professor, Department of Oral and Maxillofacial Services, Dental and Oral Surgery I, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.
3. Professor, Department of Oral and Maxillofacial Services, Dental and Oral Surgery I, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.
4. Professor, Department of Oral and Maxillofacial Services, Dental and Oral Surgery I, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Arun Paul Charlu,
Room No. 4, Department of Dental and Oral Surgery I, OPD Building,
Christian Medical College and Hospital, Vellore-632004, Tamil Nadu, India.
E-mail: drarunpaul81@gmail.com

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